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Full Length Research Paper

Jordanian nurses and acute myocardial infarction patients' perceptions about learning needs

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Abstract

The purpose of this study was to investigate the Jordanian nurses and Acute Myocardial Infarction patients' perceptions about learning needs. It also aims to know the effect of some variables such as gender, age, years of experience, marital status, educational level, Experience in patient Education, monthly income, area of residence, and disease history on their perceptions. The sample of the study consisted of 250 participants, 50 nurses (25 males and 25 females) and 200 Acute Myocardial Infarction patients, and was obtained purposefully from study population (CCUs of Princess Basma Hospital and the King Abdullah University Hospital) .Means and standard deviations were used to show the results. The results of the study showed that the cardiac patients' perceptions of their educational needs were high in most of the domains although it is medium in some items. Results also showed that the nurses' perceptions of the cardiac patient's educational needs are high in all the domains. T-test was used to measure the difference between the patients' and nurses' perceptions, results showed that there are no statistically significant differences at the level of significance (α= 0.05) in the scale domains (Introduction to the CCU, Risk Factors, Diet Information, Physical Activity, and other pertinent information), there were statistically significant differences at the level of significance (α= 0.05) in the domains (Anatomy and Physiology, Psychological Factors, and Medication Information). Pearson correlation coefficient was used to measure the relationship between the patients and nurses' demographic variables and perception of educational needs. Results showed that there were no statistically significant relationships between the cardiac patient learning needs inventory subscales and nurses' gender, nurses' age, nurses' marital status and nurses' educational level. There was statistically significant relationship between the psychological factors and patients' marital status, Pearson correlation coefficient showed a weak positive correlation. Finally, results also showed that the relationship between patient's clinical variables and their perceptions of learning needs was weak.

Keywords: Acute myocardial infarction patients, learning needs

INTRODUCTION

Advances in identifying effective treatments for Acute Myocardial Infarction (AMI) have not prevented the presence of substantial difficulties in applying these treatments to subject's care. Cardiovascular disease (CVD) remains the primary cause of death and disability worldwide (Rosamond, Flegal, Furie, Go, Greenlund, Haase, *et al*., 2008).

The (World Health Organization, [WHO], 2006) reported that CVD causes 16.1 million deaths per year worldwide, representing 29% of all global deaths. Of these deaths 7.2 million were due to CVD. The CVD is an important condition to consider, it remains the major cause of death in many countries. By 2020 it is predicted to be the leading cause of disease burden worldwide WHO, (2006).). Nearly 78% of the heart and vascular-related disorders have occurred in developing countries (Agırbaslı, Aka, Akcevin, *et al*. 27 Kasım 2006) compared with other European countries In the Eastern Mediterranean Region (EMR) the CVD is responsible for 35% of deaths (WHO, 2002). Similar rates (35%) were reported in Jordan (MOH, 2007). Cardiac education and cardiac rehabilitation aim to improve patients' long-term survival and recovery, post Acute myocardial infarction (AMI) Cardiac education and cardiac rehabilitation aim to

improve patients' long-term survival and recovery, post myocardial infarction (MI), through education on risk factor management. Risk factors are those, which when present in an individual, place him at a higher risk of developing ischemic heart disease. These include smoking, hypertension, elevated serum cholesterol, obesity, diabetes and lack of exercise. Patients are commonly taught about management of these areas through written and verbal information regarding anatomy and physiology, lifestyle, medications, exercise, and diet advice.

The increase in the society's urge for a healthy life as well as medical and technological advances have lengthened the life span and brought about the issue of maintaining a high quality lifestyle along with chronic disorders.

The prerequisite to solving this problem is increasing the individual's, families' and the society's awareness through education and having them undertake more responsibility for their health/disorders. Undoubtedly, this would be ensured by acquiring the necessary knowledge, skills and behaviors that is, training (Tasocak, 2003). Education is a systematic process which aims at forming observable and conscious changes in a patient's attitudes or behaviors through teaching (Tasocak, 2003; Jackson, Cheney, 1987). The necessary steps for an effective education can be listed as identifying the patients' primary learning needs, creating appropriate educational materials, checking the learning environment, using appropriate educational techniques and evaluating the results (Jackson, Cheney, 1987).

Significance of Problem

Coronary artery disease is highly prevalent in Jordan and is the leading cause of mortality and morbidity for both men and women (AbuRuz, Bulatova, and Yousef 2008). The modification of risk factors, a vital aspect of the recovery process, can be done, in part, through patient education.

However, information presented to the patient on various aspects of the disease process or treatment that may not be of important covariance to the client, may lead to noncompliance with treatment or recommended lifestyle changes. Patients may fail to follow certain treatment regimens due to the patient misunderstanding about what they are supposed at examined delay in seeking medical care in patients experiencing Acute Myocardial Infarction (AMI) are from Arabic perspective.

Statement of the Problem

The identification of learning needs is crucial for successful educating patients and producing behavior changes and risk-factor control. Nevertheless, it should be stressed that knowledge of disease, treatment and risk factors alone does not lead to behavior changes. Therefore, one might ask, what is important for patients to learn about disease and treatment, Previous studies found that improving patients' knowledge resulted in an increase in patients' satisfaction (Larson *et al*., 1996; Stewart *et al*., 2004), improvement in self efficacy and decrease in psychological burden (Stewart *et al*., 2004), improvement in the quality of life (Larson *et al*., 1996), improvement in adherence to prescribed medications and therapeutic regimen (Alm Roijer *et al*., 2004; Thanavaro *et al*., 2006), and increased assistance for patients in adopting more preventive behaviors (Alm-Roijer *et al*. 2004; Stewart *et al*., 2004; Thanavaro *et al*., 2006).

Before effective teaching can begin, healthcare providers must first assess the educational needs and learning styles of the patient, Decreased hospitalization contributes to patients feeling overwhelmed by the vast amount of information provided to them in the early stages of a disease process. Shortened hospital stay reduces the time available for teaching patients information necessary for their recovery (Ashton, 1997). With an inadequate amount of time, information is condensed. The condensed information provided to the patient by members of the healthcare team may be biased according to what they deem to be important. Traditionally, healthcare professionals are the ones who select the content for patient education; yet, a patient's content priorities may differ from those of the healthcare provider (Hussey, 1997). Patients' perceptions of that which is important information may be different from that of the healthcare members providing the education. Goodman (1997) conducted a study dealing with patients' perceptions of their educational needs, examining the belief that education has greater impact on the patient if it takes as a starting point the patient's idea and perceptions, rather than the ideas from the healthcare team. Therefore, it is important for healthcare providers to assess the learning needs of each patient prior to developing, implementing, and evaluating the educational design.

Purpose of the Study

The purpose of this study is to compare the perceptions of Acute Myocardial Infarction (AMI) patients with those of Acute Myocardial Infarction (AMI) nurses concerning the patient learning needs for maintaining a healthy cardiac function. From the study, nurses are to identify various topics that are perceived by patients to be important within the educational process. From the topics identified by the patients to be of most important, education surrounding those issues was presented. This leaded to more favorable outcomes for the cardiac patients.

Questions of the Study

This study attempts to answer the following questions:

1. What are the Acute Myocardial Infarction cardiac patients' perceptions of their learning needs?
2. What are the nurses' perceptions of the cardiac patient's learning needs?
3. Is there a difference between the patients' and nurses' perceptions?
4. Is there a relationship between the patients and nurses demographic variables and perception of learning needs?
5. Is there a relationship between patient's clinical variables and their perceptions of learning needs?

Limitations of the Study

This study has several limitations; most importantly about half of the persons experiencing Acute Myocardial Infarction (AMI) die before reaching medical help, thus those most in need of intervention would not be available for interviews. This study is limited to Acute Myocardial Infarction (AMI) at CCUs of Princess Basma Hospital and the King Abdullah University Hospital during the 2014 year and to any similar population.

LITERATURE REVIEW

Some studies investigate the patients' expected needs rather than the actual needs. In fact, several studies have documented the presence of discrepancies between patients' actual needs and health-care workers' expectations about the patients' needs (Scott & Thompson, 2003; Timmins & Kaliszer, 2003; Paquet *et al*., 2005; Timmins, 2005). Additionally, several studies by (Jackson *et al*. 2000; Roebuck *et al*. 2001; Webster *et al*., 2002; Hanssen *et al*., 2005) reported dissatisfaction with the information provided and that patients' actual learning needs were not met. Therefore, patient-centered care was encouraged (Skelton, 2001) by creating programs that were congruent with patients' actual learning needs (Astin *et al*., 2008). Furthermore, the traditional role of the educator has shifted from an information giver to a designer and manager of the learning process. This role alteration requires competency in the assessment of learner needs, as well as in the ability to involve learners in planning the learning process (Bastable, 2003; Glanz *et al*., 2008).

Previous studies that explored the learning needs of AMI patients were mainly carried out in Europe and the USA. In light of the differences in health-care systems, resources and cultural perspectives between the aforementioned countries and Jordan, the findings of these studies might not represent the actual learning needs of Jordanian AMI patients. Therefore, the present study might benefit nurses in Jordan by providing them with essential information for helping AMI patients in their learning needs.

Grande; Elliotta; Worcestera; Murphya; Goblea; Kugathasana and Sinha (2012) conducted a study entitled "Identifying illness perception schemata and their association with depression and quality of life in cardiac patients" the purpose of their study is to identify groups of cardiac patients who share similar perceptions about their illness and to examine the relationships between these schemata and psychosocial outcomes such as quality of life and depression.

A total of 190 cardiac patients with diagnoses of myocardial infarction, stable angina pectoris or chronic heart failure, completed a battery of psychosocial questionnaires within four weeks of their admission to hospital. These included the Brief Illness Perceptions Questionnaire (BIPQ), Beck Depression Inventory II (BDI II) and The MacNew Health-related Quality of Life instrument (MacNew).

BIPQ items were subjected to latent class analysis (LCA) and the resulting groups were compared according to their BDI II and MacNew scores. LCA identified a five-class model of illness perception which comprised the following: (1) Consequence focused and mild emotional impact, n ¼ 55, 29%; (2) Low illness perceptions and low emotional impact, n ¼ 45, 24%; (3) Control focused and mild emotional impact, n ¼ 10, 5%; (4) Consequence focused and high emotional impact, n ¼ 60, 32%; and (5) Consequence focused and severe emotional impact, n ¼ 20, 10%. Gender and diagnosis did not appear to reflect class membership except that class 2 had a significantly higher proportion of AMI patients than did class 5. There were numerous significant differences between classes in regards to depression and health-related quality of life. Notably, classes 4 and 5 are distinguished by relatively high BDI II scores and low MacNew scores. Identifying classes of cardiac patients based on their illness perception schemata, in hospital or shortly afterwards, may identify those at risk of developing depressive symptoms and poor quality of life.

Eriksson, Asplund, and Svedlund, (2010) conducted a study entitled "Couples' thoughts about and expectations of their future life after the patient's hospital discharge following acute myocardial infarction" the purpose of this study is to describe and interpret couples' thoughts and expectations about their future life after the patient's discharge following acute myocardial infarction. Qualitative descriptive and interpretative was used, the sample of the study consisted of fifteen couples took part in individual interviews, 4–8 weeks after discharge. Data were analyzed in two phases using qualitative content analysis.

Results showed that the first phase of the analysis revealed two categories: 'an active approach to the future' and 'a wait-and-see approach to the future', both of which described the participants' thoughts about the future. In the second phase, the couples' stories were interpreted and grouped into four positions: 'the life companions', 'the tightrope walkers', 'the pathfinders' and 'the observers', which illustrated their visions of the future. The results reveal differences in the couples'

thoughts about and expectations of their future life, most of them managed the situation by having a positive attitude to life and their future. The couples discovered their resources and compensated for or balanced each other in the early recovery period. The results also indicate the importance of giving both partners the opportunity to express their views of the situation, as this increases nurses' understanding of the impact of the illness on their life and relationship. However, the results also highlight the significance of seeing the couple and showing them consideration both as individuals and as a unit.

Smith and Liles (2006) conducted a study entitled "Information needs before hospital discharge of myocardial infarction patients: a comparative, descriptive study" the purpose of the study is to explore the information needs of patients who have received treatment for a myocardial infarction before their discharge home from an acute hospital. The researchers used a Patient Learning Needs Scale questionnaire which was completed by 20 myocardial infarction patients within 72 hours of their intended discharge. Quantitative descriptive and inferential analyses were conducted using Statistical Package for Social Sciences. The results showed that patients indicated how important it was to know about each of 40 information items before discharge from hospital. Items related to medications, complications and physical activities were rated highly. Responses to an open question revealed that driving, returning to work and sources of support were issues of concern. Non-parametric Mann–Whitney U-tests showed that retired and older patients desired more information than their employed and younger counterparts, especially concerning community support.

Kilonzo and O'Connell (2010) conducted a study entitled "Secondary prevention and learning needs post percutaneous coronary intervention (PCI): perspectives of both patients and nurses" the purpose of this study was to evaluate the learning needs of patients post percutaneous coronary intervention from the perspective of both patients' and cardiac nurses'. The researchers used descriptive survey from one cardiac unit where approximately 30 post percutaneous coronary intervention were performed per month. Self-report data were provided by patients using an adaptation of the Nursing Information and Support scale for health-related quality of life informational needs. This scale includes physical, psychosocial, emotional and disease-specific dimensions. The questionnaire was also provided to cardiac nurses. Statistical tests applied were Spearman's Correlation and the Mann–Whitney U test.

The results of the study showed that Patients (n = 33) and nurses (n = 13) completed the questionnaire. Disease-specific items, physical action, psychosocial and emotional information were the categories that patients found most important. Cardiac nurses perceived physical action as least important and focused more on psychosocial and emotional issues. Individual items revealed the patients particularly valued their interaction with the nurses.

METHODOLOGY

This part addresses the statistical analyses used within this study describe the sample, design, setting, sample, procedures and tools, and statistical analysis of the study.

Sample of the Study

The sample of the study consisted of 250 participants, 50 nurses (25 males and 25 females) and 200 Acute Myocardial Infarction patients, and was obtained purposefully from study population (CCUs of Princess Basma Hospital and the King Abdullah University Hospital)

Design of the Study

The design of this study was a non experimental, explorative, and comparative design. The data was cross-sectional due to the nurses' and patients' perceptions being evaluated at a single point of time.

Setting

The study was conducted in the CCU of Princess Basma Hospital and the King Abdullah University Hospital. Both are public hospitals that provide care to the vast majority of Jordanians in Irbid city which is located in the northern district of the kingdom. These two hospitals are considered the best equipped public hospitals in the district. Most of Acute Myocardial Infarction (AMI) cases are referred to these hospitals for emergency admission and managements since such services are not available in the peripheral hospitals of the district.

Procedure for Data Collection

Data collection was preceded as follows: daily checking of the admission records of the ER and the CCU of the targeted hospitals were done by the researcher. The needed data was gathered according to the inclusion criteria from patients' records and from the personal structured interviews which were conducted with each patient. Each patient's interview was based on structured questionnaires (The Socio demographics Questionnaire and a Cardiac Patients Learning Needs Inventory (CPLNI) Gerard & Peterson (1984). The total time for each interview was approximately 30 minutes.

Table 1: The mean and standard deviations for all domains and total average of the patients' answers

Id	Domain	Mean	SD. deviation	The degree of importance
1	Introduction to the CCU	3.83	0.67	High
2	Anatomy and Physiology	3.27	1.20	Median
3	Psychological Factors	3.43	1.18	Median
4	Risk Factors	4.26	0.66	High
5	Medication Information	4.43	0.59	High
6	Diet Information	4.02	0.83	High
7	Physical Activity	3.78	1.04	High
8	Other Pertinent Information	3.69	1.03	High
Total average		3.79	0.70	High

Measurements

Patient Demographics

Patients' characteristics were measured by using the Socio demographics Questionnaire. It consisted of two parts: the first aimed to measure the socio demographics of the patients. It included questions about patient's personal characteristics such as age, gender, address, marital status, living alone or living with others, socioeconomic status (average income in JDs in relation to the number of family members), type of medical insurance (ministry of health, military, private, or without insurance), work status, and educational level. Patients' educational level was categorized in two categories; low educational level (having less than high school, and high educational level (having a certificate or more than high school).The level of measurement for patients' age, gender, and work status will be measured as nominal data. The second part of the instrument was collected from patient's medical records and then was verified by the patients during the interview phase. The second part of the interview measured clinical characteristic such as the history of chronic illnesses (diabetes mellitus, angina, CAD, or previous ACS, hypertension; and hyperlipidemia); smoking history (number of cigarettes / day, period of smoking plus when the patient quit smoking, if (s) he did?); ECG findings on admission; cardiac enzymes; and serum lipids findings. The answers for this part ascertained from the medical records and patient confirmation during the structured interview. The nurse demographic sheet included age, gender, marital status, number of years practicing as a registered nurse and cardiac nurse, employment status such as full time, or part time, degree in nursing, experience in teaching cardiac patients, and the description of the teaching plan that is used by the individual nurse.

Statistical Analysis

Means and standard deviation were used for descriptive analyses which answer the first and second research questions. The t- test, ANOVA, and Pearson correlation coefficient were presented to answer the 3rd and 5th questions. Multiple logistic regression analysis was used to estimate predictors for delay time. The level of significance was set at ($p < 0.05$).

RESULTS

This part addresses the statistical findings from this study. This study explored the Jordanian Nurses and Acute Coronary Syndrome Patients Perceptions about Cardiac Patients Learning Needs.
The statistical analyses used within this study describe the sample, answer the research questions, and provide descriptive information.

Research Questions

The first research question**, "**What are the cardiac patients' perceptions of their educational needs**?**
To answer this question, means and standard deviations were extracted for all domains and whole paragraphs for the answers of heart patients on a scale of learning needs.

All domains ranged from (3.27 -4.43), Where the domain of (Medication Information) got the highest mean, followed by the domain (Risk Factors) with the mean (4.26),while the domain of (Anatomy and Physiology) had the lowest mean and the total average had the mean of (3.79) results are shown in Table 1.

Table 2: Means and standard deviations for all first domain paragraphs for patients' answers

Id	Paragraph	Mean	SD. Deviation	The degree of importance
1	Why I am in the coronary care unit?	4.33	0.78	High
2	What tests are done to determine if I have had a heart disease	4.43	0.79	High
3	Why I have an intravenous line (I.V?	3.63	1.14	High
4	Why my activity is limited?	3.60	1.17	High
5	What are the usual nursing routines and coronary care unit	2.88	1.40	Median
6	What to do if I have chest pain?	4.10	1.07	High
Domain (Introduction to the CCU)		3.83	0.67	High

Table 3: Means and standard deviations for all second domain paragraphs for the patients' answers

Id	Paragraph	Mean	SD. deviation	The degree of importance
1	Why do I have chest pain?	3.54	1.35	High
2	What my heart looks like?	2.74	1.48	Median
3	How my heart works?	2.94	1.49	Median
4	What causes a heart attack?	3.29	1.53	Median
5	What happens when someone has a heart attack?	3.59	1.30	High
6	How my heart heals	3.54	1.38	High
7	Why my heartbeat may be irregular or I may have	3.28	1.45	Median
Domain (Anatomy and Physiology)		3.27	1.20	Median

The first Domain: Introduction to the CCU

The mean for all first domain paragraphs ranged from (2.88 -4.43), Where the highest mean was for the paragraph (What tests are done to determine if I have had a heart disease), while the lowest mean was for the paragraph (What are the usual nursing routines and coronary care unit, results are shown in Table 2.

The second domain: Anatomy and Physiology

The means for all the second domain paragraphs ranged from (2.74 -3.59), Where the highest mean was for the paragraph (What happens when someone has a heart attack?), while the lowest mean was for the paragraph (What my heart looks like? Results are shown in Table 3.

The third domain: Psychological Factors.

The mean for all third domain paragraphs ranged from (3.16 -3.62), Where the highest mean was for the paragraph (The importance of talking to someone about my fears), while the lowest mean was for the paragraph (What I can do to reduce stress when I go home?) results are shown in Table 4.

The fourth domain: Risk Factors

Means for all fourth domain paragraphs ranged from (4.11 -4.42), Where the highest was for the paragraph (What I can do to decrease my chances of having another), while the lowest mean was for the paragraph (What the term "risk factor" means) results are shown in Table 5.

The fifth domain: Medication Information

Means for all fifth domain paragraphs ranged from (4.38 - 4.48), Where the highest mean was for the paragraph (What to do if I have problems with my medication?), while the lowest mean was for the paragraph (Why am I

Table 4: Means and standard deviations for all third domain paragraphs for the patients' answers

Id	Paragraph	Mean	SD. deviation	The degree of importance
1	The normal psychological response to having a serious	3.28	1.36	Median
2	The importance of talking to someone about my fears,	3.16	1.43	Median
3	What effect stress has on my heart?	3.59	1.28	High
4	What I can do to reduce stress while in the hospital?	3.52	1.34	High
5	What I can do to reduce stress when I go home?	3.62	1.36	High
Domain (Psychological Factors)		3.43	1.18	Median

Table 5: Means and standard deviations for all fourth domain paragraphs for patients' answers

Id	Paragraph	Mean	SD. Deviation	The degree of importance
1	What the term "risk factor" means	4.11	0.85	High
2	Which risk factors may have contributed to the onset of my heart disease	4.19	0.89	High
3	What I can do to decrease my chances of having another	4.42	0.73	High
4	How these risk factors affect my heart	4.30	0.68	High
Domain (Risk Factors)		4.26	0.66	High

Table 6: Means and standard deviations for all fifth domain paragraphs for the patients' answers

Id	Paragraph	mean	SD. Deviation	The degree of importance
1	General rules about taking medications	4.45	0.74	High
2	Why am I taking each of my medications?	4.38	0.73	High
3	What the side effects of each medication are?	4.41	0.81	High
4	What to do if I have problems with my medication?	4.48	0.63	High
Domain (Medication Information)		4.43	0.59	High

taking each of my medications?) results are shown in Table 6.

The sixth domain: Diet Information

Means for all sixth domain paragraphs ranged from (3.87 -4.10), Where the highest mean was for the paragraph (General rules about eating), while the lowest mean was for the paragraph (How to adapt the recommended diet to my lifestyle?) results are shown in Table 7.

The seventh domain: Physical Activity

Means for all the seventh domain paragraphs ranged from (3.69 -3.86), Where the highest mean was for the paragraph (Why I am not able to do as much physically as I was before), while the lowest mean was for the paragraph (When can I engage in sexual activity?) results are shown in Table 8.

The eighth domain: Other Pertinent Information

Means for all the eighth domain paragraphs ranged from (2.95 -3.93), Where the highest mean was for the paragraph (If any other tests will be done after I leave the hospital?), while the lowest mean was for the paragraph (How to take my pulse?) results are shown in Table 9.

The second research question**,** what are the nurses' perceptions of the cardiac patient's educational needs?

Table 7: Means and standard deviations for all sixth domain paragraphs for patients' answers

Id	Paragraph	mean	SD. deviation	The degree of importance
1	General rules about eating	4.10	0.91	High
2	How diet affects my heart disease?	4.01	0.92	High
3	What the words cholesterol and triglycerides mean?	3.97	1.03	High
4	What foods contain cholesterol and triglycerides?	4.09	0.97	High
5	What my diet restrictions are, if any?	4.09	0.97	High
6	How to adapt the recommended diet to my lifestyle?	3.87	1.08	High
Domain (Diet Information)		4.02	0.83	High

Table 8: Means and standard deviations for all seventh domain paragraphs for the patients' answers

Id	Paragraph	Mean	SD. Deviation	The degree of importance
1	Why I am not able to do as much physically as I was before	3.86	1.11	High
2	General guidelines for physical activity	3.74	1.16	High
3	What my physical activity restrictions are, if any?	3.85	1.15	High
4	How to tell if I can increase my activity?	3.76	1.16	High
5	When can I engage in sexual activity?	3.69	1.35	High
Domain (Physical Activity)		3.87	1.04	High

Table 9: Means and standard deviations for all eighth domain paragraphs for patients' answers

Id	Paragraph	Mean	SD. Deviation	The degree of importance
1	How to take my pulse	2.95	1.54	Median
2	The signs and symptoms of angina and a heart attack?	3.83	1.20	High
3	The signs and symptoms of congestive heart failure	3.89	1.17	High
4	When to call the doctor?	3.79	1.22	High
5	If any other tests will be done after I leave the hospital?	3.93	0.98	High
6	The reason for further testing after I go home?	3.75	1.17	High
7	Where my family can go to learn C.P.R.?	3.71	1.26	High
Domain (Other Pertinent Information)		3.69	1.03	High

Table 10: Means and standard deviations for all domains and total average for the nurses' answers

Id	Domain	Mean	SD. Deviation	The degree of importance
1	Introduction to the CCU	3.65	0.86	High
2	Anatomy and Physiology	3.84	0.86	High
3	Psychological Factors	4.04	0.89	High
4	Risk Factors	4.11	0.89	High
5	Medication Information	4.01	0.82	High
6	Diet Information	3.66	0.84	High
7	Physical Activity	3.67	0.94	High
8	Other Pertinent Information	3.83	0.70	High
Total average		3.65	0.86	High

Table 11: Means and standard deviations for all first domain paragraphs for the nurses' answers

Id	Paragraph	Mean	SD	The degree of importance
1	Why I am in the coronary care unit?	3.98	1.22	High
2	What tests are done to determine if I have had a heart	4.20	1.05	High
3	Why I have an intravenous line (I.V)	3.58	0.99	High
4	Why my activity is limited?	3.68	1.02	High
5	What are the usual nursing routines and coronary care unit	3.30	1.25	Median
6	What to do if I have chest pain?	4.32	0.89	High
Domain (Introduction to the CCU)		3.84	0.75	High

To answer this question means and standard deviations was extracted for all domains and whole paragraphs for the answers of nurses on the learning needs scale results are shown in table (10).

Means for all domains ranged from (3.65 -4.11), Where the highest mean was for the domain (Risk Factors), Then followed by the mean of (4.04) for the domain (Psychological Factors), while the lowest mean was for the domain (Introduction to the CCU) and the mean for total average was (3.65) results are shown in Table 10.

The first Domain: Introduction to the CCU

Means for all first domain paragraphs ranged from (3.30 - 4.32), Where the highest mean was for paragraph the (If any other tests will be done after I leave the hospital?), while the lowest mean was for the paragraph (How to take my pulse?) results are shown in Table 11.

The second domain: Anatomy and Physiology

Means for all second domain paragraphs ranged from (3.08 - 4.00), Where the highest mean was for the paragraph (What happens when someone has a heart attack?), while the lowest mean was for the paragraph (What my heart looks like?) results are shown in Table 12.

The third domain: Psychological Factors

Means for all third domain paragraphs ranged from (3.72 - 4.06), Where the highest mean was for the paragraph (What effect stress has on my heart?), while the lowest

Table 12: Means and standard deviations for all second domain paragraphs for the nurses' answers

Id	Paragraph	mean	SD. Deviation	The degree of importance
1	Why do I have chest pain?	3.74	1.16	High
2	What my heart looks like?	3.08	1.18	Median
3	How my heart works?	3.36	1.17	Median
4	What causes a heart attack?	3.82	1.04	High
5	What happens when someone has a heart attack?	4.00	0.97	High
6	How my heart heals	3.82	1.08	High
7	Why my heartbeat may be irregular or I may have	3.72	0.93	High
Domain (Anatomy and Physiology)		3.65	0.86	High

Table 13: Means and standard deviations for all third domain paragraphs for the nurses' answers

Id	Paragraph	Mean	SD. Deviation	The degree of importance
1	The normal psychological response to having a serious	3.80	0.90	High
2	The importance of talking to someone about my fears,	3.78	1.11	High
3	What effect stress has on my heart?	4.06	0.96	High
4	What I can do to reduce stress while in the hospital?	3.84	1.02	High
5	What I can do to reduce stress when I go home?	3.72	1.09	High
Domain (Psychological Factors)		3.84	0.86	High

mean was for the paragraph (What I can do to reduce stress when I go home?) results are shown in Table 13.

The fourth domain: Risk Factors

Means for all fourth domain paragraphs ranged from (3.74 - 4.22), Where the highest mean was for the paragraph (What I can do to decrease my chances of having another), while the lowest mean was for the paragraph (What the term "risk factor" means) results are shown in Table 14.

The fifth domain: Medication Information

Means for all fifth domain paragraphs ranged from (3.96 - 4.20), Where the highest mean was for the two paragraphs (General rules about taking medications, Why am I taking each of my medications?), while the lowest mean was for the paragraph (What the side effects of each medication are?) results are shown in Table 15.

The sixth domain: Diet Information

Means for all sixth domain paragraphs ranged from (3.94 - 4.12), Where the highest was for the paragraph (General rules about eating), while the lowest mean was for the paragraph (What my diet restrictions are, if any?) results are shown in Table 16.

The seventh domain: Physical Activity

Means for all seventh domain paragraphs ranged from (3.54 - 3.82), Where the highest mean was for the paragraph (When can I engage in sexual activity?), while the lowest mean was for the paragraph (How to tell if I can increase my activity? Results are shown in Table 17.

The eighth domain: Other Pertinent Information

Means for all eighth domain paragraphs ranged from (3.26 - 3.92), Where the highest mean was for the paragraph (The signs and symptoms of angina and a heart attack?), while the lowest mean was for the paragraph (How to take my pulse) results are shown in Table 18.

The third research question**: Is there a difference between the patients' and nurses' perceptions?**

To answer this question t- test was applied on the all domains and total average. Results are shown in Table 19.

Table 14: Means and standard deviations for all fourth domain paragraphs for the nurses' answers

Id	Paragraph	Mean	SD. Deviation	The degree of importance
1	What the term "risk factor" means	3.74	1.29	High
2	Which risk factors may have contributed to the onset of my heart disease	4.04	0.99	High
3	What I can do to decrease my chances of having another	4.22	0.93	High
4	How these risk factors affect my heart	4.16	0.87	High
Domain (Risk Factors)		4.04	0.89	High

Table 15: Means and standard deviations for all fifth domain paragraphs for the nurses' answers

Id	Paragraph	mean	SD. Deviation	The degree of importance
1	General rules about taking medications	4.20	1.03	High
2	Why am I taking each of my medications?	4.20	0.95	High
3	What the side effects of each medication are?	3.96	1.01	High
4	What to do if I have problems with my medication?	4.10	0.97	High
Domain (Medication Information)		4.11	0.89	High

Table 16: Means and standard deviations for all sixth domain paragraphs for the nurses' answers

Id	Paragraph	mean	SD. deviation	The degree of importance
1	General rules about eating	3.94	0,96	High
2	How diet affects my heart disease?	3.98	0.94	High
3	What the words cholesterol and triglycerides mean?	3.98	1.04	High
4	What foods contain cholesterol and triglycerides?	4.04	0.90	High
5	What my diet restrictions are, if any?	4.12	0.82	High
6	How to adapt the recommended diet to my lifestyle?	4.00	0.88	High
Domain (Diet Information)		4.01	0.82	High

Table 17: Means and standard deviations for all seventh domain paragraphs for the nurses' answers

Id	Paragraph	Mean	SD. Deviation	The degree of importance
1	Why I am not able to do as much physically as I was before	3.76	0.87	High
2	General guidelines for physical activity	3.56	0.91	High
3	What my physical activity restrictions are, if any?	3.62	1.01	High
4	How to tell if I can increase my activity?	3.54	1.05	High
5	When can I engage in sexual activity?	3.82	0.94	High
Domain (Physical Activity)		3.66	0.84	High

Table 18: Means and standard deviations for all eighth domain paragraphs for the nurses' answers

Id	Paragraph	mean	SD. deviation	The degree of importance
1	How to take my pulse	3.26	1.21	Median
2	The signs and symptoms of angina and a heart attack?	3.92	1.03	High
3	The signs and symptoms of congestive heart failure	3.84	1.02	High
4	When to call the doctor?	3.78	1.04	High
5	If any other tests will be done after I leave the hospital?	3.68	0.98	High
6	The reason for further testing after I go home?	3.54	0.99	High
7	Where my family can go to learn C.P.R.?	3.70	1.15	High
Domain (Other Pertinent Information)		3.67	0.94	High

Table 19: Results of the application of the t- test on all domains

Domains Cardiac patient learning needs inventory subscales	Variable	Mean	T-test	Degree freedom	p-value
Introduction to the CCU	Nurses	3.84	0.160	248	0.87
	Patients	3.83			
Anatomy and Physiology	Nurses	3.65	2.089	248	0.03
	Patients	3.27			
Psychological Factors	Nurses	3.84	2.284	248	0.02
	Patients	3.43			
Risk Factors	Nurses	4.04	-1.902	248	0.06
	Patients	4.26			
Medication Information	Nurses	4.12	-3.022	248	0.003
	Patients	4.43			
Diet Information	Nurses	4.01	-0.089	248	0.92
	Patients	4.02			
Physical Activity	Nurses	3.66	-0.741	248	0.45
	Patients	3.78			
Other Pertinent Information	Nurses	3.67	-0.102	248	0.91
	Patients	3.69			
Total average	Nurses	3.83	0.384	248	0.70
	Patients	3.79			

Table 20: The results extract Pearson correlation coefficient for domains with demographic variables

Cardiac patient learning needs inventory subscales	Nurses				Patients			
Domain	**Gender**	**Age**	**Marital Status**	**Educational level**	**Gender**	**Age**	**Marital Status**	**Educational level**
Introduction to the CCU	-0.147	0.146	-0.175	0.150	-0.124	0.023	-0.010	-0.181*
Anatomy and Physiology	0.084	0.245	-0.259	0.248	-0.139	-0.066	0.073	0.164*
Psychological Factors	-0.104	0.113	-0.087	0.012	-0.220	-0.043	0.141*	0.050
Risk Factors	-0.068	0.158	-0.049	-0.065	-0.194	0.088	0.017	0.014
Medication Information	-0.051	0.039	0.021	-0.164	-0.059	-0.048	-0.071	-0.010
Diet Information	-0.136	0.084	-0.027	0.014	-0.262	-0.003	0.040	0.098
Physical Activity	-0.043	0.032	-0.088	-0.072	-0.231	0.130	-0.001	0.001
Other Pertinent Information	-0.006	0.082	-0.209	-0.063	-0.195	-0.003	0.032	0.057

* Correlation is significant at the 0.05 level (2-tailed)

Table 21: Results extracted from Pearson correlation coefficient for domains with clinical variables

Domain (cardiac patient learning needs inventory subscales)	Hypertension	Diabetes	Lipid Profile	Smoking	Family History of (CDH)	Visit physician Regularly	BMI	Regular Medication	Previous Admission for cardiac disease
Introduction to the CCU	0.075	-0.067	-0.053	-0.019	0.224	-0.234	-0.074	-0.182	-0.050
Anatomy and Physiology	0.078	0.186	-0.021	-0.048	-0.023	-0.228	-0.027	-0.433	-0.140*
Psychological Factors	0.042	0.173*	-0.138	-0.055	-0.079	-0.269	0.110	-0.333	-0.137
Risk Factors	0.065	0.203	-0.152*	-0.231	-0.026	-0.161*	0.084	-0.098	-0.085
Medication Information	-0.002	0.202	-0.044	-0.206	0.100	0.049	-0.108	-0.032	-0.108
Diet Information	0.032	0.332	-0.171*	-0.176*	-0.036	-0.274	-0.017	-0.288	-0.105
Physical Activity	0.076	0.310	-0.108	-0.140*	-0.033	-0.167*	-0.044	-0.328	-0.100
Other Pertinent Information	-0.016	0.273	-0.066	-0.115	-0.095	-0.216	0.041	-0.424	-0.212

* Correlation is significant at the level of 0.05 (2-tailed)

There are no statistically significant differences at the level of significance (α= 0.05) in these domains of the scale (Introduction to the CCU, Risk Factors, Diet Information, Physical Activity, Other Pertinent Information, Total average), when the (T) value was (0.16, -1.902, -0.89, -0.741, -0.102, 0.384) respectively, there are statistically significant differences at the level of significance (α= 0.05) in the domains (Anatomy and Physiology, Psychological Factors, Medication Information), (T) values reached (2.089, 2.284,-3.022) the Values are statistically significant, these differences were the interest of (nurses) on domains (Anatomy and Physiology, Psychological Factors) where the mean for nurses was (3.84, 3.65) respectively and the differences on the domain (Medication Information) was the interest of (patients) when the mean was (4.43).

The fourth research question**: Is there a relationship between the patients and nurses demographic variables and perception of educational needs?**

To answer this question correlations were analyzed using person correlation coefficient between the cardiac patient learning needs inventory subscales and demographic variables. Results are shown in Table 20.

The correlation coefficient between the nurses gender and the subscales domains of the CPLNI ranged from (-0.147 –0.84). The correlation coefficient between the nurses age and the subscales domains of the CPLNI ranged from (0.032 –0.158). The correlation coefficient between the nurses marital status and the subscales domains of the CPLNI ranged from (-0.259 – 0.021). The correlation coefficient between the nurses educational level and the subscales domains of the CPLNI ranged from (-0.072 –0.248).

There were no statistically significant relationships between the cardiac patient learning needs inventory subscales and nurses gender ,nurses age, nurses marital status and nurses educational level.

The correlation coefficient between the patients gender and the subscales domains of the CPLNI ranged from (-0.262 – -0.059). The correlation coefficient between the patients age and the subscales domains of the CPLNI ranged from (-0.066 – 0.130). The correlation coefficient between the patients marital status and the subscales domains of the CPLNI ranged from (-0.071 – 0.141). The correlation coefficient between the patients' educational level and the subscales domains of the CPLNI ranged from (-0.181 – 0.98).

There was statistically significant relationship between the psychological factors and patient marital status, where Pearson correlation coefficient value was (0.141), this indicates a weak statistical positive correlation.

There was statistically significant relationship between the introduction to the CCU, anatomy and physiology and patient educational level, where person correlation coefficient values were (-0.181, 0.164) respectively, this indicates a negative and weak statistical positive correlation.

There were no statistically significant relationships between the cardiac patient learning needs inventory subscales and patient gender and age.

The fifth research question**: Is there a relationship between patient's clinical variables and their perceptions of learning needs?**

To answer this question correlation were analyzed using person correlation coefficient between the cardiac patients' learning needs inventory subscales and patients' clinical variables. Results are shown in Table 21.

The correlation coefficient between the hypertension and the subscales domains of the CPLNI ranged from (-0.016 – 0.078). The correlation coefficient between the diabetes and the subscales domains of the CPLNI ranged from (-0.067- 0.332). The correlation coefficient between the lipid profile and the subscales domains of the CPLNI ranged from (-0.171 – -0.044). The correlation coefficient between the smoking and the subscales domains of the CPLNI ranged from (-0.231 – -0.019). The correlation coefficient between the family history of (CDH) and the subscales domains of the CPLNI ranged from (-0.095 – 0.224). The correlation coefficient between the visit physician regularly and the subscales domains of the CPLNI ranged from (-0.274 – 0.049).). The correlation coefficient between the BMI and the subscales domains of the CPLNI ranged from (-0.108 – 0.110). The correlation coefficient between the regular medication and the domains subscales of the CPLNI ranged from (-0.433 – -0.032). The correlation coefficient between the previous admission for cardiac disease and the domains subscales of the CPLNI ranged from (-0.212 – - 0.050).

There were no statistically significant relationships between the cardiac patient learning needs inventory subscales and Hypertension, Family history of (CDH), ACS and Regular medication.

There was statistically significant relationship between the psychological factors and Diabetes, when Pearson correlation coefficient value was (0.173), this indicates a weak statistical positive correlation.

There were statistically significant relationships between the Risk factors, Diet information and lipid profile, when Pearson correlation coefficient values were (-0.152, -0.171) respectively, this value indicates a weak statistical negative correlation.

There were statistically significant relationships between the Diet information, physical activity and smoking, when Pearson correlation coefficient values were (-0.176, -0.140) respectively, this value indicates a weak statistical negative correlation.

There were statistically significant relationships between the Risk factors, physical activity and visit physical activity, when Pearson correlation coefficient values were (-0.161, -0.167) respectively, this indicates a weak statistical negative correlation.

There was statistically significant relationship between the anatomy and physiology and previous admission for cardiac disease, when Pearson correlation coefficient values were (-0.140), this value indicates a weak statistical negative correlation

CONCLUSION

The most stressful time for AMI survivors is the early period after discharge. Therefore, the patients face challenges that might arise after discharge need help from nurses who play a vital role in preparing the patients for recovery and they should direct their efforts toward helping those patients. However, appropriate preparation depends on understanding the patients' actual needs, rather than expected needs. The seriousness of AMI as perceived by the patients is reflected through the higher perception of learning needs after discharge. Socio demographic and clinical factors play an essential role in

identifying the differences in learning needs among ACS survivors; therefore, nurses should consider these factors when developing and carrying out cardiac rehabilitation and secondary prevention programs.

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